SAF-RC-083 RCBRA-Inter-Areas Shoreline **Assessment – Tissues** FINAL DATA PACKAGE

COMPLETE COPY OF FINAL DATA PACKAGE TO:

Jackie Queen H4-22

KW 1/16/08 Initials/Date

COMMENTS:

SDG FGS01 SAF-RC-083

Rad only

X Chem only Rad & Chem

X Complete

Partial

Waste Site:

RCBRA 2j Aq, FISH WHOLE ORG RCBRA 3b Aq, FISH WHOLE ORG RCBRA 21 Aq, FISH WHOLE ORG RCBRA 2m Aq, FISH WHOLE ORG RCBRA 4b Aq, FISH WHOLE ORG





15 January 2008

Rich Weiss WA Closure Hanford 2620 Fermi Ave. Richland, WA 99354

RE: RCBRA



414 Pontius Ave North Seattle, WA 98109 Ph: 206-622-6960 Fx: 206-622-6870

Enclosed are the analytical results for samples received by Frontier GeoSciences, Inc. All quality control measurements are within established control limits and there were no analytical difficulties encountered with the exception of those listed in the case narrative section of this report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Matthew Gomes

Project Manager



Fx: 206-622-6870

ANALYTICAL REPORT FOR SAMPLES

Laboratory: Frontier GeoSciences, Inc.

SDG:

Client: WA Closure Hanford

Project: RCBRA

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J15J31-A	0711155-01	Tissue	20-Nov-07 10:30	27-Nov-07 10:26
J15J32-A	0711155-02	Tissue	15-Nov-07 11:15	27-Nov-07 10:26
J15J33-A	0711155-03	Tissue	19-Nov-07 15:30	27-Nov-07 10:26
J15J88-A	0711155-04	Tissue	21-Sep-07 12:55	27-Nov-07 10:26
J15J75-A	0711155-05	Tissue	11-Sep-07 15:30	27-Nov-07 10:26
J15J86-A	0711155-06	Tissue	12-Sep-07 09:05	27-Nov-07 10:26
J15J92-A	0711155-07	Tissue	21-Sep-07 13:15	27-Nov-07 10:26
J15J89-A	0711155-08	Tissue	21-Sep-07 14:10	27-Nov-07 10:26
J15J90-A	0711155-09	Tissue	21-Sep-07 15:00	27-Nov-07 10:26
115J91-A	0711155-10	Tissue	20-Sep-07 10:30	27-Nov-07 10:26
J15J20-A	0711155-11	Tissue	21-Sep-07 12:00	27-Nov-07 10:26
J15J21-A	0711155-12	Tissue	20-Sep-07 14:45	27-Nov-07 10:26

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414 Pontius Ave North Seattle, WA 98109 Ph: 206-622-6960 Fx: 206-622-6870

CASE NARRATIVE

Work Order Number: 0711155:

SAMPLE RECEIPT

Twelve (12) fish tissue samples were received on November 27, 2007 for the RCBRA project, workorder 0711155. Samples were received within a sealed cooler with a temperature of 1.1°C. Tissue samples were received and transferred to the freezer for storage until preparation could occur.

SAMPLE PREPARATION

Fish tissue samples for total inorganic arsenic analysis were cryofrozen, ground and extracted with dilute hydrochloric acid.

SAMPLE ANALYSIS

Inorganic As was analyzed in digested fish tissues by hydride generation cryogenic trapping gas chromatography atomic absorption spectrophotometry (HG-CT-GC-AAS) according to method FGS-022.

ANALYTICAL AND QUALITY CONTROL ISSUES

There were no analytical difficulties and all quality control analyses were within acceptable limits except as flagged and described in the following report.

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CHAIN OF CUSTODY FORMS

Washington Clos	sure Hanford	1 6	HAIN OF CUST	ODVS.	AMPLE	ANALY	SIS	REOTES	r	RC	083-231	Page 1	pe 1
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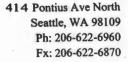
Fx: 206-622-6870

CHAIN OF CUSTODY FORMS

Washington Close	ure Hanford	CH	IAIN OF CUST	ODY/S	AMPLE	ANALY	SIS R	EQUES'	r	R	C-083-232	Pary 1	ed !
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CHAIN OF CUSTODY FORMS

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Fx: 206-622-6870

CHAIN OF CUSTODY FORMS

Washington Close	re Hanford	C	HAIN OF CUST	ODY/S	AMPLE	ANALY	SIS	REQUEST	r	H	C-097-11	Page 1	et I
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CHAIN OF CUSTODY FORMS

	n Closure Hanford		CHA	IN OF CUST	ODY/S	AMI	PLE	ANAL	YSIS	REC	UEST		· · · · · · · · · · · · · · · · · · ·	C-097-3	Page 1	ef 1
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CHAIN OF CUSTODY FORMS

	n Closure Hanford	C	HAIN OF CUST	ODY/S.	AMPLE	ANALY	YSIS R	EQUEST		H	C-097-9	Page 1	of j
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Fx: 206-622-6870

CHAIN OF CUSTODY FORMS

Washington	Closure Hanford	211	HAIN OF CUST	WW.	A MIDI E	ANALVE	II D	TOURST		RC	-097-15	Page 1	of 1
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CHAIN OF CUSTODY FORMS

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CHAIN OF CUSTODY FORMS

Washington Clos	ure Hanford	C	HAIN OF CUST	ODY/S	AMPLE	ANALI	SIS R	EQUEST		RC	-097-13	Paps I	of I
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SECTION Received	o fly			T	ale							Nie/True	
FINAL SAMPLE DISPOSITION	Metrod					Dage	and by					Dax/Time	

WCH-EE-011

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414 Pontius Ave North Seattle, WA 98109

Ph: 206-622-6960 Fx: 206-622-6870

CHAIN OF CUSTODY FORMS

	losure Hanford	C	HAIN OF CUST	ODY/S.	AMPLE A	NALYSIS	REQUEST	R	C2-097-14	Page 1	न् 1
Collector UTILLER	JAMES BERNHARD	Comp	ANY COMMIT	Telephon 375-40	ie No.		Project Coordina KSSSNER, JH	Price Code	9C	Data Tue	
Protect Designation 100 & 300 Arra Com	ponent of the RCBRA Tissues - R	Sumn RC	ling Location BRA Vet Refsite 14 Au	FISH OFF	the whole any	12 8120	RC-097			15 1	Days
lee Chind Nn.	BC-01-041	Field El.	Lagbook No. -1614-1		COA BESKAS6520		Method of Shipe	FED E	X		
Shipped To Free Language	ten Grescians, Se	ail oni	e Property No.	oga	176		itali of A.arding/A				
POSSIBLE SAMPLE	HAZARDS/REMARKS#106	97	Preservation	Cort-K	Coor-ec						
Special Handling as	nd/or Storage		Type of Cantainer	16	PVG						
	COMPOSED OF FISH.		No. of Container(s)	1	fünd:				-		
		Volume	Silpst.	este s es es es e							
	SAMPLE ANALY	reges		CITY HENCE W	Artical Strangering						
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la increased By Removed S	nun Desalline	ment in D	312/31mc								
LABORATORY No.	oct year) My			Y	i) z					Directions:	-
FINAL SAMPLE DE	posal Method					Disposed By				Datefine	· · · · · · · · · · · · · · · · · · ·
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CHAIN OF CUSTODY FORMS

Washingto	u Clost	are Hanford		CHAIN OF CUS	TO	DY	SA	MPLE	ANALY	SIS	REOU	EST	1	RC-	083-220	Pege 1	of I
Callector B.Teller	JA	MES BERNHARD	Com	DAN KESSNER		Telepi		No.			Project Co	ordinator	Pv	ice Conto	9C	Data Tue	
Project Designation RCBRA-Inter-A	ness Sliceel	ine Assessment - Tissues	Name Re	giáng Location CISRA 23 Aq., 1981 aris	inte	wie s		mo.	12.67		KAP No.					151	Days
lee Chect No.	ERC-	01-041	Fiete	1 Legbook No. L 1614			T	COA BESBEAG	120		Method of		•				
Shipped To Fo	ntu Co	Buthland So. C	UA Om	ise Property No.	08	00	20	6			Bill of La SEE OS		III No.				
POSSIBLE SAM	PLE HAZ	ARDS/REMARKS	1424-67	Preservation	N	Cool-4		Cool-4C									
Special Handlin	ag nod/or	Storage		Type of Containe		ac.		afi									
		OSED OF FISH		No. of Containers)	1		•									
				Volume		10,6		163									
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CHAIN OF CUSTODY FORMS

Washingto	n Closure	Hunford	C	HAIN OF CUST	CODY/	SA	MUPLE	ANAL	YSIS	REC	DUEST		RC	-083-221	Page 1	of 1
Collector B Tiller	IAMES	BERNHARD		ns Contact Telephones: No. N KESSNER 774-46088					Project Coordinator KESSNER, JH		mor P	rice Code	9C		r maround	
Protect Designation RCBRA-later Ar		Andresses - Tresses	Sanus							SAF No. RC-063					15 Days	
fre Chest No.			Pleid	Logbook No.		T	COA BESBEA6	,			uida to be	HERSEN				
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Special Handlin	an sendion the			Type of Container	aG		aKi					-				
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Fx: 206-622-6870

Total Inorganic Arsenic Analytical Results

Matrix: Tissue

Preparation: Leach for As Speciation in Tissue

Sample Name	Result	MRL	Units	Dilution	Batch	Prepared	Sequence	Analyzed	Method	Notes
15J31-A	ND	0.014	mg/kg	3	F801057	01/10/08	8A12001	01/11/08	FGS-022	U
15J32-A	ND	0.075	mg/kg	15	F801057	01/10/08	8A12001	01/11/08	FGS-022	U
15J33-A	ND	0.015	mg/kg	3	F801057	01/10/08	8A12001	01/11/08	FGS-022	U
15J88-A	ND	0.016	mg/kg	3	F801057	01/10/08	8A12001	01/11/08	FGS-022	U
15J75-A	ND	0.015	mg/kg	3	F801057	01/10/08	8A12001	01/11/08	FGS-022	U
15J86-A	ND	0.014	mg/kg	3	F801057	01/10/08	8A12001	01/11/08	FGS-022	U
15J92-A	ND	0.015	mg/kg	3	F801057	01/10/08	8A12001	01/11/08	FGS-022	· U
15J89-A	ND	0.015	mg/kg	3	F801057	01/10/08	8A12001	01/11/08	FGS-022	U
15J90-A	ND	0.015	mg/kg	3	F801057	01/10/08	8A12001	01/11/08	FGS-022	U
15J91-A	ND	0.015	mg/kg	3	F801057	01/10/08	8A12001	01/11/08	FGS-022	U
15J20-A	ND	0.015	mg/kg	3	F801057	01/10/08	8A12001	01/11/08	FGS-022	U
15J21-A	ND	0.015			F801057	01/10/08	8A12001	01/11/08	FGS-022	Ū

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Ph: 206-622-6960 Fx: 206-622-6870

MATRIX DUPLICATES/TRIPLICATES

SOURCE: 0711155-05RE1

Matrix: Tissue

Sequence: 8A12001

Batch: F801057

Lab Number: F801057-DUP1

Preparation: Leach for As Speciation in Tissue

	Sample Concentration	Duplicate Concentration		%	RPD		
Analyte	mg/kg	mg/kg	MRL	RPD	Limit	Method	Notes
Total Inorganic Arsenic	ND	ND	0.015	ND	25	FGS-022	U

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Fx: 206-622-6870

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 0711155-04RE1

Matrix: Tissue

Sequence: 8A12001

Batch: F801057

Lab Number: F801057-MS/MSD1

Preparation: Leach for As Speciation in Tissue

Analyte	Sample Concentrati (mg/kg)	Spike Added (mg/kg)	Conce	AS ntration g/kg)	MS % Recovery	Revovery Limits	Method	Notes
Total Inorganic Arsenic	ND	0.040816	0.049		119	75 - 125	FGS-022	
Analyte	Spike Added (mg/kg)	MSD Concentration (mg/kg)	MSD % Recovery	% RPD	Revovery Limits	RPD Limit	Method	Notes
Total Inorganic Arsenic	0.040404	0.046	115	3.47	75 - 125	25	FGS-022	

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Fx: 206-622-6870

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 0711155-03RE1

Matrix: Tissue

Sequence: <u>8A12001</u>

Batch: <u>F801057</u>

Lab Number: F801057-MS/MSD2

Preparation: Leach for As Speciation in Tissue

Analyte	Sample Concentrati		Conce	MS ntration	MS %	Revovery		
Total Inorganic Arsenic	(mg/kg)	(mg/kg) 0.081967		g/kg) .095	Recovery 116	75 - 125	Method FGS-022	Notes
Analyte	Spike Added (mg/kg)	MSD Concentration (mg/kg)	MSD % Recovery	% RPD	Revovery Limits	RPD Limit	Method	Notes
Total Inorganic Arsenic	0.081967	0.090	110	5.24	75 - 125	25	FGS-022	AS

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Fx: 206-622-6870

LABORATORY CONTROL SAMPLE/ LABORATORY CONTROL SAMPLE DUPLICATE

RECOVERY AND RPD

Matrix: Tissue

Sequence: 8A12001

Batch: F801057

Lab Number: F801057-BS/BSD1

Preparation: Leach for As Speciation in Tissue

LCS Source: DORM-2 +As(V)

Analyte		Spike Added (mg/kg)	LCS Concentration (mg/kg)	LCS % Recovery	Revovery Limits	Method	Notes
Total Inorganic Arsenic		0.099010	0.114	115	75 - 125	FGS-022	
	Spike	LCSD	LCSD				

	Spike Added	LCSD Concentration	LCSD	%	Revovery	RPD		
Analyte	(mg/kg)	(mg/kg)	Recovery	RPD	Limits	Limit	Method	Notes
Total Inorganic Arsenic	0.098039	0.120	122	6.10	75 - 125	25	FGS-022	

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Fx: 206-622-6870

PREPARATION BLANKS

Matrix: Tissue

Instrument: AAS-1

Sequence: 8A12001

Preparation: Leach for As Speciation in Tissue

Lab Sample ID	Analyte	Found	MRL	Units	Batch	Method	Notes
F801057-BLK4	Total Inorganic Arsenic	-0.00005	0.002	mg/kg	F801057	FGS-022	U
F801057-BLK1	Total Inorganic Arsenic	0.001	0.005	mg/kg	F801057	FGS-022	U
F801057-BLK2	Total Inorganic Arsenic	0.001	0.005	mg/kg	F801057	FGS-022	U
F801057-BLK3	Total Inorganic Arsenic	0.0009	0.005	mg/kg	F801057	FGS-022	U
F801057-BLK5	Total Inorganic Arsenic	0.00002	0.002	mg/kg	F801057	FGS-022	U
F801057-BLK6	Total Inorganic Arsenic	0.0001	0.002	mg/kg	F801057	FGS-022	U
F801057-BLK7	Total Inorganic Arsenic	0.00009	0.002	mg/kg	F801057	FGS-022	U

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Notes and Definitions

Analyte included in the analysis, but not detected

This MS and/or MSD is an analytical spike and/or an analytical spike duplicate.

DET Analyte Detected

MRL Minimum Reporting Limit

ND Analyte Not Detected at or above the reporting limit

Sample results reported on a wet weight basis wet

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference **RSD**

Relative Standard Deviation

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